STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

Washington State Energy Code Development

Standard Energy Code Proposal Form

May 2018

Log No. _____

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions

Code Section # _C406.13_____

Brief Description:

Brief Description: Provides path to a C406.13 credit for the installation of ECM pumps with self-actuating thermostatic balancing valves. Projects incorporating this approach greatly reduce pumping energy consumption.

Proposed code change text: (Copy the existing text from the Integrated Draft, linked above, and then use underline for new text and ~~strikeout~~ for text to be deleted.)

C406.13 High efficiency service hot water circulation systems. Multi-riser service hot water circulation systems shall be installed with a circulate pump operated by an Electronic Commuted Motor (ECM). Self-actuated thermostatic balancing valves shall be provided to balance system flow at each riser.

TABLE C406.1
EFFICIENCY PACKAGE
CREDITS

Code Section	Commercial Building Occupancy					
	Group R-1	Group R-2	Group B	Group E	Group M	All Other
	Additional Efficiency Credits					
1. More efficient HVAC performance in accordance with Section C406.2	2.0	3.0	3.0	2.0	1.0	2.0
2. Reduced lighting power: Option 1 in accordance with Section C406.3.1	1.0	1.0	2.0	2.0	3.0	2.0
3. Reduced lighting power: Option 2 in accordance with Section C406.3.2[a]	2.0	3.0	4.0	4.0	6.0	4.0
4. Enhanced lighting controls in accordance with Section C406.4	NA	NA	1.0	1.0	1.0	1.0
5. On-site supply of renewable energy in accordance with C406.5	3.0	3.0	3.0	3.0	3.0	3.0
6. Dedicated outdoor air system in accordance with Section C406.6[b]	4.0	4.0	4.0	NA	NA	4.0

7. High performance dedicated outdoor air system in accordance with Section C406.7	4.0	4.0	4.0	4.0	4.0	4.0
8. High-efficiency service water heating in accordance with Sections C406.8.1 and C406.8.2	4.0	5.0	NA	NA	NA	8.0
9. High performance service water heating in multi-family buildings in accordance with Section C406.9	7.0	8.0	NA	NA	NA	NA
10. Enhanced envelope performance in accordance with Section C406.10[c]	3.0	6.0	3.0	3.0	3.0	4.0
11. Reduced air infiltration in accordance with Section C406.11 [c]	1.0	2.0	1.0	1.0	1.0	1.0
12. Enhanced commercial kitchen equipment in accordance with Section C406.12	5.0	NA	NA	NA	5.0	5.0 (Group A-2 only)
13. High efficiency circulation systems	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**

a. Projects using this option may not use Item 2.
b. This option is not available to buildings subject to the prescriptive requirements of Section C403.3.5.
c. Buildings or building areas that are exempt from thermal envelope requirements in accordance with Sections C402.1.1 and C402.1.2 do not qualify for this package.

Purpose of code change:

Projects incorporating this approach greatly reduce pumping energy consumption as compared to systems with constant volume and fixed flow balancing valves.

Your amendment must meet one of the following criteria. Select at least one:

- ☐ Addresses a critical life/safety need.
- ☐ The amendment clarifies the intent or application of the code.
- ☒ Addresses a specific state policy or statute. (Note that energy conservation is a state policy)
- ☐ Consistency with state or federal regulations.
- ☐ Addresses a unique character of the state.
- ☐ Corrects errors and omissions.

Check the building types that would be impacted by your code change:

- ☐ Single family/duplex/townhome
- ☐ Multi-family 1 – 3 stories
- ☒ Multi-family 4 + stories
- ☒ Commercial / Retail
- ☒ Institutional
- ☒ Industrial

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Your name	Chris Little	Email address	chrisl@rushingco.com
Your organization	Rushing Company	Phone number	206-763-2944
Other contact name	Eric Vander Mey		

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@des.wa.gov. For further information, call the State Building Code Council at 360-407-9278.

Economic Impact Data Sheet

Briefly summarize your proposal's primary economic impacts and benefits to building owners, tenants and businesses.

Domestic hot water circulation systems equipped with ECM pumps and self-actuating balancing valves are able to "auto-tune" the pump flow and head pressure loss based on the systems needs to maintain a temperature setpoint. As circulation systems operate over the life of the building, the energy savings associated with this equipment will be reduced from systems installed with a constant volume pump and pressure independent balancing valves.

This saves both pump energy and service hot water reheat energy by controlling the flow rate through each riser and shutting of the flow for risers that are near the supply temperature.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal? (See OFM Life Cycle Cost **Analysis tool** and **Instructions;** use these **Inputs**. **Webinars on the tool can be found Here and Here**)

$NA/square foot (For residential projects, also provide $NA/ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

As this is a proposed change to the C406 section this is an option that an owner can pursue if they choose this option and determine that it is cost effective. Therefore, cost analysis information has not been provided as it is not a mandatory requirement of the code.

Therefore, only information is provided as to the energy and/or carbon emissions savings. The Energy Code TAG may need to adjust the number of credits for based on final code language for this credit or other credits.

Provide your best estimate of the annual energy savings (or additional energy use) for your code change proposal?

Click here to enter text.KWH/ square foot (or) Click here to enter text.KBTU/ square foot

(For residential projects, also provide Click here to enter text.KWH/KBTU / dwelling unit)

Show calculations here, and list sources for energy savings estimates, or attach backup data pages

Domestic hot water circulation systems consume a significant amount of energy to keep the system warm for multi-family buildings. Many building use as much energy for heating the domestic hot water and to maintain the DHW system temperature.

List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application:

Estimate minimal additional to verify the circulation system equipment type and efficiency on plan review or in field.

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.